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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,481	09/22/2003	Kazunari Kimino	R2180.0178/P178	5528
24998	7590	08/10/2004	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			KENNEDY, JENNIFER M	
2101 L STREET NW			ART UNIT	
WASHINGTON, DC 20037-1526			PAPER NUMBER	
			2812	

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,481

Applicant(s)

KIMINO, KAZUNARI

Examiner

Jennifer M. Kennedy

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 and 11-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 8 and 10 is/are rejected.
- 7) ☐ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/22/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group II in the reply filed on May 28, 2004 is acknowledged. The traversal is on the ground(s) that the inventions are so closely related to each other that they would not be a serious burden for the Examiner to examine all of the claims at one time. This is not found persuasive.

A restriction requirement between one set of apparatus claims, a set of process claims and a set of product claims was issued in the Office action mailed April 28, 2004. "Section 121 [of Title 35 USC] permits a restriction for 'independent and distinct inventions,' which the PTO construes to mean that the sets of claims must be drawn to separately patentable inventions." See *Applied Materials Inc. v. Advanced Semiconductor Materials* 40 USPQ2d 1481, 1492 (Fed. Cir 1996)(Archer, C.J., concurring in-part and dissenting in-part). A product and the process of making the product are "two independent, albeit related inventions." See *In re Taylor*, 149 USPQ 615, 617 (CCPA 1966). "When two sets of claims filed in the same application are patentably distinct or represent independent inventions, the examiner is to issue a restriction requirement." See *In re Berg*, 46 USPQ2d 1226, 1233 n.10 (Fed. Cir. 1998).

The examiner, in issuing a restriction requirement, must demonstrate "one way distinctiveness." *Applied Materials Inc.* at 1492. As stated within the restriction requirement:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be

Art Unit: 2812

practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus could be used to practice another and materially different process such as one in which the at least one fuse element not to be disconnected is with a corresponding overlying layer of etching barrier resin at the point when the fuse is etched, rather than without a corresponding overlying layer of etching barrier resin.

Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the device could be made by another and materially different process such as a process in which the at least one fuse element not to be disconnected is with a corresponding overlying layer of etching barrier resin at the point when the fuse is etched (disconnected), rather than without a corresponding overlying layer of etching barrier resin.

Inventions I and III are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this

case the apparatus can be used for making a different product that is not a semiconductor device.

In addition to one way distinctiveness, the examiner must show "why it would be a burden to examine both sets of claims." *Applied Materials Inc.* at 1492. "A serious burden on the examiner may be *prima facie* shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search." MPEP 803. An explanation was provided in the restriction requirement. Specifically, in addition to being distinct, the examiner indicated that restriction is proper because the product claims and the process claims "have acquired a separate status in the art."

The criteria of distinctness and burdensomeness have been met, as demonstrated hereinabove. Accordingly, the restriction requirement in this application is still deemed proper and is therefore made FINAL.

Claims 1-6, and 11-28 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in the response filed May 28, 2004.

Claim Objections

Claim 7 is objected to because of the following informalities: In lines 11-12 the claim recites that "such that at least one fuse element not to be selectively disconnected is without a corresponding overlying layer of etching barrier resin". It is the examiner's

Art Unit: 2812

understanding that the fuse that is to be selectively disconnected does not have a barrier and the fuse to not be selectively disconnected has a layer of etching barrier resin overlying it. The claim appears to be in contradiction to the examiner's understanding of the invention and more importantly the specification and the Figures of the instant application. The examiner notes that for example in Figures 1A-1D it can be seen that the fuse to be disconnected (41a) does not have an overlying etching barrier resin and that the fuse element not to be disconnected (41b) is with an overlying layer of etching barrier resin (49). The examiner believes, however, that the claim as written merely has a typographical error or an error in translation, and therefore no 112 rejections will be made at this time. The examiner believes the claim should read

--such that at least one fuse element not to be selectively disconnected is **with** a corresponding overlying layer of etching barrier resin,--

Examination will be made accordingly.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Janai et al.

(U.S. Patent No. 5,679,967).

Janai et al. discloses a method for manufacturing a semiconductor device, comprising:

selectively disconnecting at least one of a plurality of fuse elements (438) formed on a semiconductor wafer substrate, said semiconductor wafer substrate (not labeled, see Figure 5A, column 9, lines 35-45) having a dielectric layer (905) with a plurality of openings that correspond to locations for forming said plurality of fuse element (see Figure 5A);

forming a layer of etching barrier resin (900) in an opening corresponding to a location of at least one fuse element not to be selectively disconnected out of said plurality of fuse elements; and

implementing either one of dry and wet etching steps using said layer of etching barrier resin as a mask such that at least one fuse element not to be selectively disconnected is with a corresponding overlying layer of etching barrier resin, and said fuse element selected to be disconnected is etched (see column 9, line 65 through column 10, line 10).

The examiner notes that photoresist is defined by Merriam Webster's Dictionary, Tenth Edition, as a photosensitive resin that loses its resistance to chemical etching when exposed to radiation and is used especially in the transference of a circuit pattern to a semiconductor chip during the production of an integrated circuit

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Janai et al. (U.S. Patent No. 5,679,967) in view of Tateyama et al. (U.S. Patent No. 5,919,520).

Janai et al. discloses the method as claimed and rejected above including adding photoresist to replenish the opening corresponding to said location fo said fuse element not selectively disconnect, but does to disclose the method of depositing the photoresist.

Tateyama et al. disclose the method wherein the step of forming said layer of etching barrier resin comprise scanning at least one discharging nozzle for discharging said raw etching barrier resin while discharging droplets of said raw etching barrier resin and hardening said raw etching barrier resin (see column 3, lines 20-33 and column 5, line 59 through column 6, line 47, and column 9, lines 20-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to deposit and harden the photoresist of Janai et al. by the method of Tateyama et al. because as Tateyama et al. discloses it will allow for a uniform thickness (see column 2, lines 28-35).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Janai et al. (U.S. Patent No. 5,679,967) in view of Kimura et al. (U.S. Patent Appl. 2002/0080004).

Janai et al. discloses the method as claimed and rejected above, but does not disclose the method wherein the plurality of fuse elements are polysilicon. Kimura et al. teaches the method wherein fuses may be made of metal or polysilicon. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the plurality of fuse elements are formed from polysilicon because Janai et al. teaches that while metal is disclosed as forming the fuse that any electrically conducting material may be used for the fuses (see Janai et al. column 12, lines 20-26) and as Kimura et al. teaches polysilicon is a conventional material for fuses, and may be used in place of metal (see Kimura et al. [0005]) .

Allowable Subject Matter

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art, either singly or in combination, fails to anticipate or render obvious, the limitations of a method of wherein the forming of said layer of etching barrier resin includes discharging droplets of said raw etching barrier resin of an amount smaller for

Art Unit: 2812

an area in vicinity of a periphery, than other portions, of said opening in combination with the other claim limitations of 8 and 7.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer M. Kennedy whose telephone number is (571) 272-1672. The examiner can normally be reached on Mon.-Fri. 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jennifer M. Kennedy
Patent Examiner
Art Unit 2812